Systematic position and synonymy of the genus *Modernacris*

(Orth. Acridoidea)

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In 1931 Willemse described a remarkable new genus and species *Modernacris controversa*. In 1935 he described a second species of the genus *Modernacris simplex*. Uvarov in 1937 described the third species *Modernacris callosa*. All three species were described from the Solomon Islands and each from a single female. The genus was placed into the subfamily *Catantopinae*.

In 1950 Willemse described another genus *Buinacris* with two species: *B. forcipata* and *B. carpentieri*. Both from the Salomon Islands and each described from a single male. The genus was placed into the subfamily *Catantopinae* as well.

In 1963, Mr. M. J. MacQuillan, entomologist of the Department of Agriculture, British Solomon Islands Protectorate, kindly sent to me a collection of *Acridoidea* from the Solomon Islands which contained one male and three females of *Modernacris controversa*. It became immediately apparent that the females of *Modernacris* and the males of *Buinacris* are congeneric. Some of them may even be conspecific. However, to date, the specimens of this group are extremely rare and specific identification of them can only be done from a larger series of both sexes collected together.

When the phallic complex of *Modernacris (= Buinacris)* was studied, it was found that its structure is typical for the familiy *Pyrgomorphidae*. Furthermore the fastigial furrow typical for this family is also present in both sexes of all known species of the genus. This necessitates the transfer of the genus into the family *Pyrgomorphidae*.

Modernacris Willemse, 1931.

Modernacris, Willemse, 1931. *(Stat.n.-Pyrgomorphidae.)*
Buinacris Willemse, 1950. *(Syn.n.)*

The description of the genus is quite recent and does not need repeating here. However, some additional points ought to be stressed.

The fastigial furrow in all known species is short and deep; the fastigial areolae are weakly developed; the frons flattened. Fully apterous. Tympanum absent. Structure of hind femur deviates from other members of the family *Pyrgomorphidae* by the lower basal lobe being of the same length or slightly shorter than upper one.

Phallic complex: cingulum wide, capsule-like, strongly sclerotized. Valves of penis undivided, exceptionally wide, spreading sideways, with external margins strongly expanded and upcurved; spermatophore sac dorsal, large, but rather flattened above. Epiphallus with strongly elongated, narrow anterior projections and small dorso-lateral appendices.

Spermatheca of unusual shape for the known Pyrgomorphids. It consists of a very large (4 mm. long) ellipsoidal shaped chamber, relatively short and narrow spermathecal duct, and a very narrow vermicular diverticulum, attached to the basal part of spermathecal duct.

There is no genus of *Pyrgomorphidae* which could be considered as related to *Modernacris.* The peculiar shape of the penis, the structure of the spermatheca and the structure of the last abdominal tergite of the male makes this genus rather isolated from the rest of the Pyrgomorphid genera.

The genus is found in the Solomon Islands only. This indicates that *Modernacris* is probably a relic of the ancient fauna of *Acridoidea* of the former Australasian continent (Bryant, 1944). The Solomon Islands according to geological data (Groves, 1958) were separated from the Australasian land mass in the Miocene period. Thus, the genus *Modernacris* may be considered as a relic of the Miocene or even pre-Miocene fauna. If this supposition is true, then *Modernacris* represents one of the most primitive genera of the family *Pyrgomorphidae.*

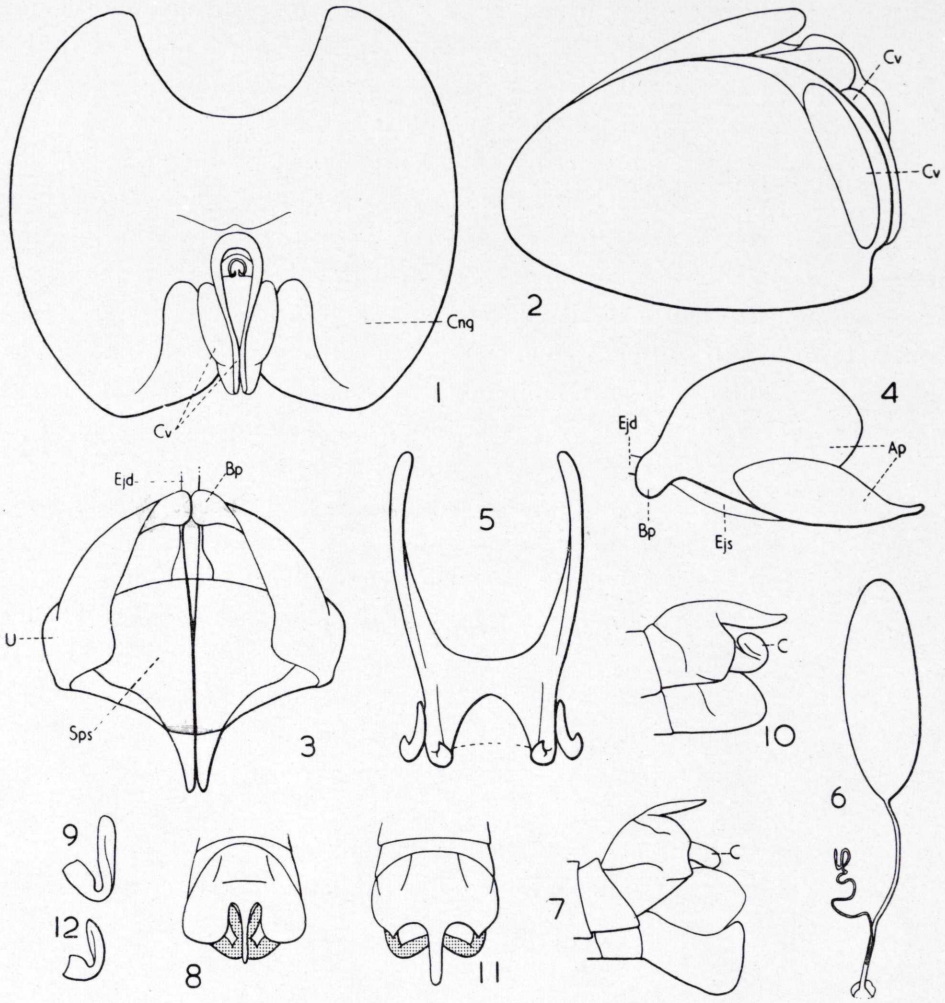

Fig. 1.—*Modernacris controversa* Willemse, 1931; 1) phallic complex, from above (epiphallus removed); 2) the same lateral view; 3) endophallus, above; 4) the same lateral view; 5) epiphallus; 6) spermatheca; 7) end of male abdomen, lateral view (in erected position, the whole capsule of the cingulum being projected); 8) end of the male abdomen from above (cerci dotted); 9) left male cercus. 10-11.—*Modernacris ysabelae* sp. nov.; 10) end of the male abdomen, lateral view; 11) the same, from above (cerci dotted); 12) left male cercus. *Symbols: Ap,* apical valve of penis; *Bp,* basal valve of penis; *Cng,* cingulum; *Cv,* valve of cingulum; *Ejd,* ejaculatory duct; *Ejs,* ejaculatory sac; *Sps,* spermatophore sac; *U,* upcurved sides of penis.

Modernacris controversa Willemse, 1931.
[Fig. 1 (1-9)].

The male of this species was not described before.

♂. Antenna longer than head and pronotum together. Fastigium

of vertex broadly angular; frontal ridge low, narrow, with shallow sulcus and obtuse carinulae; frons, in profile straight; compound eyes oval, large and prominent; ocelli vestigial. Pronotum cylindrical, without carinae, crossed by four sulci. Prosternal process low, tubercle-like, slightly transverse; mesosternal interspace elongated, with incurved sides and deep foveolae; lateral foveolae spreading sideways; metasternal interspace represented by two deep large foveolae. Hind femur slender; lower lobes of the hind knee, on both sides, obtusely angular; external apical spine of hind tibia present; hind tarsus very long, three quarters of length of tibia, slender, covered with long, soft hairs. End of abdomen inflated; ninth and tenth abdominal tergites expanded; last tergite with a long narrow projection in middle of posterior margin; sides of posterior margin roundly and moderately projecting; supra-anal plate rudimentary, not visible from above; paraprocts small, angular; subgenital plate short, wide, compressed dorso-ventrally; cercus large, widened in basal part, apical part elongated, acutangularly upcurved, carinate and rounded at apex. (Phallic complex — see generic description).

General colouration olive-ochraceous; antenna with alternating brownish and orange rings; lower side of hind femur purple; hind tibia red, with darkened apex; hind tarsus reddish; posterior edge of last abdominal tergite brown.

Length of body 25·7; pronotum 3·8; hind femur 13·0 mm.

♀. The female is the specific type. An additional character is the spermatheca (see generic description).

Geographical distribution: Type locality Solomon Is., New Georgia: Ratuna.

New Georgia: Munda 15.8.1963, 1 ♂ (adult), 2 ♀ ♀ (of the last instar); Rendova, 17.8.1963, 1 ♀ (M. J. MacQuillan). 8.10.1954, 1 ♀ (E. S. Brown).

Modernacris ysabelae sp. n.
[Figs. 1 (10-12), 2].

♂ type. Of medium size. Body elongated, cylindrical. Integument finely granose and dotted. Antenna filiform, longer than head and pronotum together, 15-segmented. Fastigium of vertex short, widely angular, in apical part slightly curved downwards, fastigial furrow deep; frontal ridge low, with low, obtuse lateral carinulae, raised

at apex; frons flattened; compound eyes large, oval, strongly convex; ocelli vestigial. Pronotum short, cylindrical, without carinae, dorsum crossed by three sulci; posterior margin straight; lower margin of lateral lobes S-curved. Prosternal process low, tubercle-like, transverse.

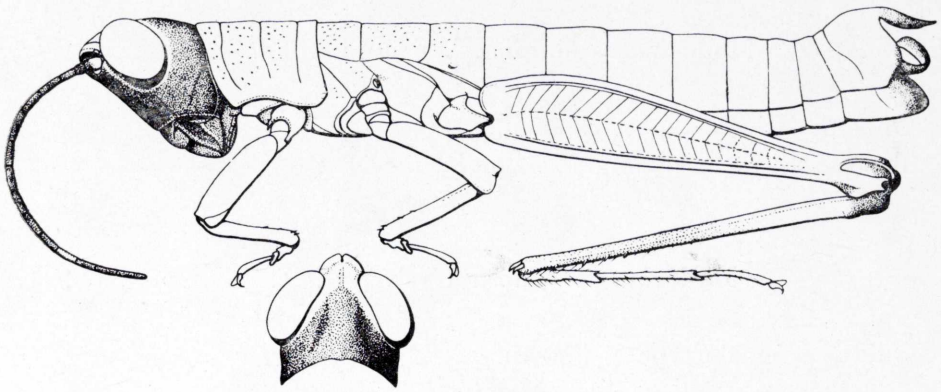

Fig. 2.—*Modernacris ysabelae* sp. nov., male, type, lateral view and head from above.

Mesosternal interspace elongated, with incurved sides and deep foveolae spread sideways. Metasternal interspace with two deep closely places foveolae. Hind femur slender, reaching end of abdomen; lobes of hind knee obtusely angular; hind tibia slender; external apical spine present; internal pair of spurs about half again as long as external ones; hind tarsus slender three quarters as long as tibia; arolium large. End of abdomen inflated; ninth and particularly tenth abdominal tergite enlarged; posterior margin of the last abdominal tergite with a long median projection and obtusely angular sides; supra-anal plate rudimentary, not seen from above; subgenital plate short, subconical, with obtuse apex; cercus in basal half widened, apical half acutangularly upcurved, flattened, rounded at apex.

Phallic complex of the same general structure as in the previous species.

General colouration olive-brownish; antenna with alternative brown and dull orange rings; head, except fastigium of vertex dark brown; lower side of hind femur purple; hind tibia reddish, hind tarsus dull reddish.

Length of body 26·0; pronotum 4·0; hind femur 13·0 mm.

Solomon Is., Ysabela Is.: Rasa, 27.7.1963, 1 ♂ type (M. J. MacQuillan). Type in the British Museum (Natural History).

This new species differs from the *Modernacris controversa* by a more robust projection of the posterior margin of the last abdominal tergite; by angular sides of the posterior margin of the last abdominal tergite and by the cercus being shorter and lees carinate in the apical half.

Modernacris simplex Willemse, 1935.

Only the female type is known.
Type locality: Solomon Is., Savo Is.

Modernacris callosa Uvarov, 1937.

Only the female type is known.
Type locality: Solomon Is., Malaita Is.

Modernacris forcipata (Willemse, 1950).

Only the male type is known.
Type locality: Solomon Is., Bougainville Is.

Modernacris carpentieri (Willemse, 1950).

Only the male type is known.
Type locality: Solomon Is., Bougainville Is.

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